

YUSHIN

HSA series

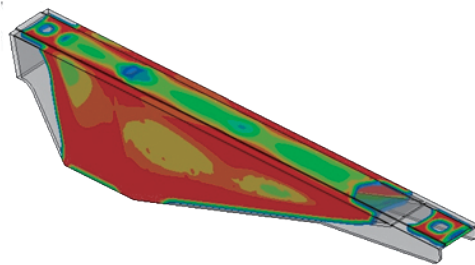
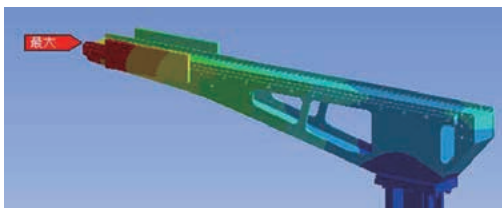
Super High-Speed Take-out Robot



0.27-second take out :
The fastest robot in its class

YUSHIN PRECISION EQUIPMENT CO.,LTD.

Why is a massive, several hundred kilogram robot needed to take-out a molded part that weighs just a few hundred grams?



CAE(Computer-Aided Engineering)

HSA[®]



To answer this riddle, Yushin employed the process of *Design Optimization* to determine the ideal robot design. *Design Optimization* is what Yushin calls the practice of applying CAE(Computer-Aided Engineering) to seek the most theoretically optimal form for a robot based on its mechanism and motions, rather than relying solely on designer experience and its inherent tendencies. Recently, this new approach has been used in order to design lighter weight and higher reliability into cars and aircraft. It is remarkable to see that in many cases, optimized designs resemble natural structures such as trees and plants. The HSA robot delivers speed and stability at levels beyond those of its traditionally-designed predecessors, and we at Yushin believe it will herald in a whole new generation of take-out robots.

Japan Society of Mechanical Engineers Technology Award Winner

The JSME presented their prestigious Technology Award in 2011 to Yushin's project to use structural optimization technology to develop a take-out robot for high-performance injection molding machines.



The Pursuit of World-Class Speed demanded Lighter Weight, a Slimmer Frame, and Smoother Motion.



Speedy

Lightweight, Optimized Design for High-Speed Operation

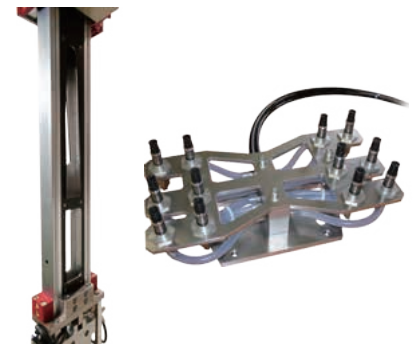
By employing the Design Optimization process, Yushin reduced robot weight by 13%* and the HSA performed at the world-class take-out time of 0.27 sec during live molding. That speed is 25% faster than previous models.



Slim

Slimmer, Optimally-Designed Arm Fits Through Narrower Mold Openings

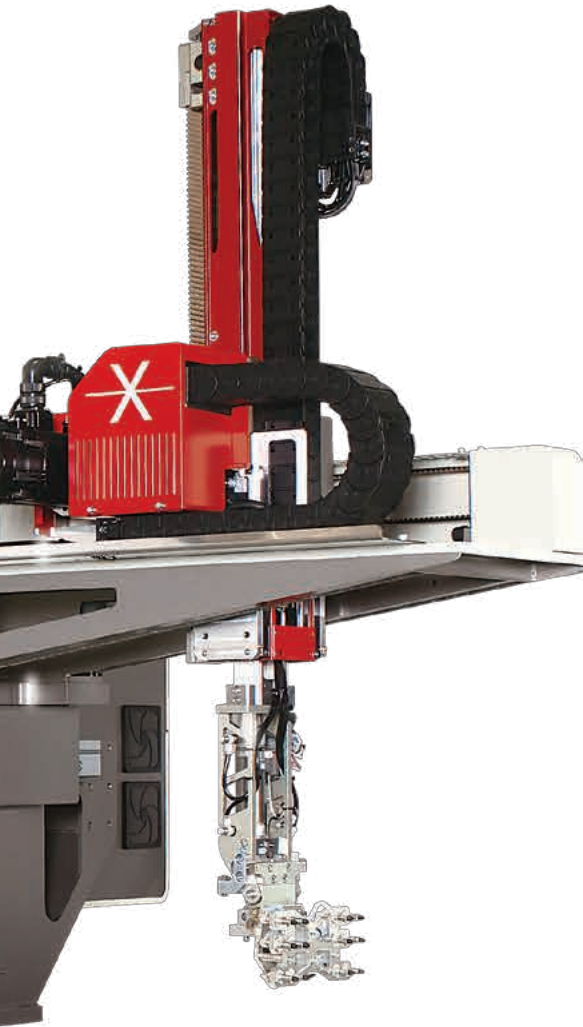
Yushin applied design optimization to the robot arm's wrist flip unit (the arm end which enters the mold) to make it 38%* slimmer. The thinner arm allows operators to shorten mold openings by up to 41mm, which helps accelerate the molding cycle.



Stable

Arm Flutter Tamed by Vibration Control Technology

Yushin engineers integrated vibration-proofing technology throughout the robot, reinforced the arm with CFRP (carbon fiber reinforced plastic) for superior vibration-damping properties, and employed design optimization on the end-of-arm tool.



0.27 sec take-out time recorded in actual molding at Kshow

The Kshow, one of the world's largest plastics and rubber tradeshows, is held every 3 years in Germany.

(Photo : Yushin booth)



Smart

Large 10.4in. Touchscreen Controller Designed for Ease-of-Use

Custom-designed for the HSA robot, the E-touch II-K controller offers easy, icon-based touch controls. Standard-equipped *Lead Through Teaching* function allows operators to add and modify positions and timers with ease. The smaller E-touch Compact II controller is also available as an alternate.

Sturdy

Handle with Confidence: Controller Stands Up to Harsh Conditions

Rubber shock guards encase each side to protect the controller. The E-touch II-K received an IP44** international rating for moisture resistance.

Saving

Compressed Air Usage Cut by Up to 75%* for Greener Operation

The HSA comes standard-equipped with one ECO-Vacuum® (PAT.) part suction circuit, which greatly reduces air usage for lower electricity bills, lower equipment expenses, and greater conservation of resources.

* Measurements above are relative to previous comparable Yushin model.
 ** Only E-touch II-K

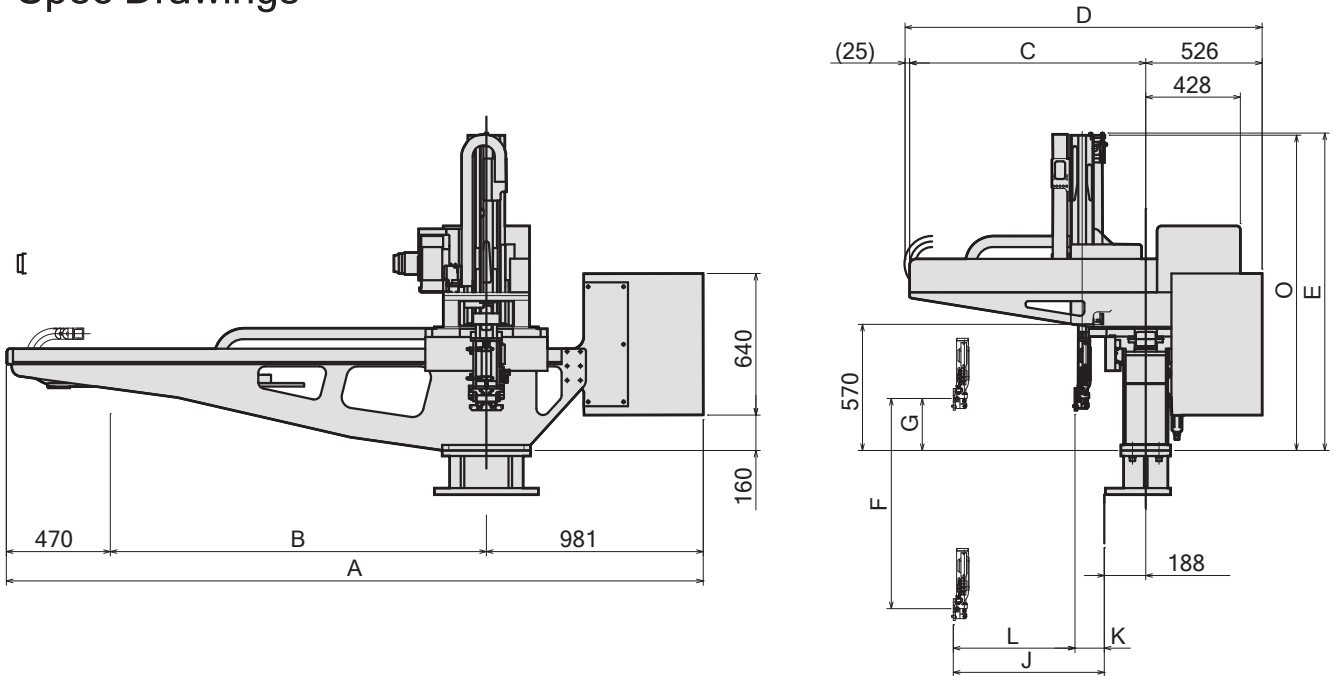
Specifications

Power source	Driving method	Control method	Air pressure	Maximum allowable air pressure (factory)	Wrist flip angle
3 Phase AC200V 50/60Hz	Digital servo motor 3-axis	Micro computer control	0.49MPa	0.70MPa	90°

Model	Power consumption	Traverse stroke (mm)		Kick stroke (mm)	Vertical stroke (mm)		Air consumption (NL/cycle)	payload (kg)	Clamping Force (tf)
				Main arm	Main arm				
HSA-150S	3 Phase AC200V 17.4A Max.	1700	[1900]	550	850	<850>	8.6 (ECO vacuum OFF) 2.9 (ECO vacuum ON)	3	100~220
HSA-250S			[2200]		<950>	<1100>			
			[2500]	760	950	<1300>	9.8 (ECO vacuum OFF) 3.6 (ECO vacuum ON)	5	180~300

[] = Modified traverse model < > = Modified vertical stroke model
Support stanchion comes standard with models 2200mm or longer.

Spec Drawings



Model	A	B	C	D	E	F	G	J	K	L	O
HSA-150S	3151 [3351]	1700 [1900]	1068	1619	1387 <1435>	850 <950>	235	683	133	550	1377 <1425>
HSA-250S	[3651]	[2200]			<1515>	<1100>					<1505>
	[3951]	[2500]	1278	1829	<1611>	<1300>		893		760	<1601>

*Please contact your Yushin sales representative for details on other robot options not listed in this catalog.

Safety information

- These products are industrial robots as defined in the labor safety rules. Always take great care when operating any robots.
- To improve visual clarity, these robots may be shown without the safety guards that are identified in the safety rules. Never operate the robots without all safety guards in place.
- Before using any product introduced in this literature, all operators must read and understand the instruction manual and other related documents for proper and safe equipment operation.

Quality Control

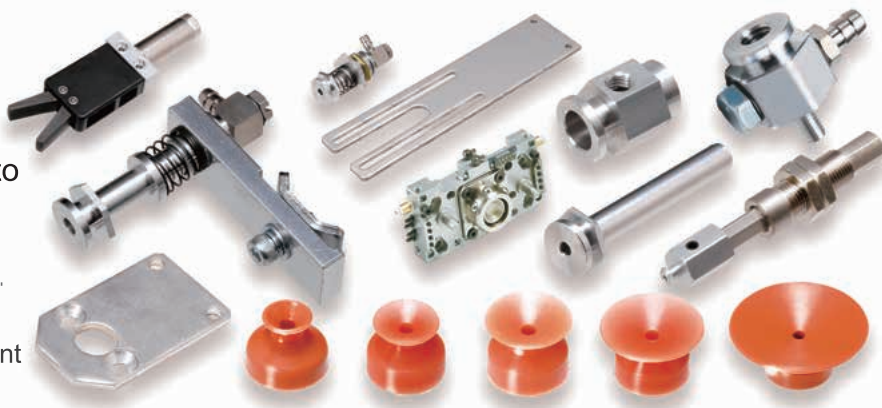


◆ ATTACHMENT PARTS

Yushin-Approved Robot Tooling and Accessories

Yushin offers a wide range of parts to help users easily build their own end-of-arm tools.

◆ Please contact your local Yushin sales representative for tooling or tool component inquiries, orders, and catalog requests.



Safety Warning

- The parts appearing in this catalog are for industrial robots defined by Japan's Ordinance on Industrial Safety and Health. Use them as stipulated in the safety provisions of that same ordinance.
- The photographs appearing in this catalog were taken without safety enclosures and other safety devices and equipment required by the aforementioned ordinance, in order to make product explanations easier to understand.
- Before using the product, prepare and install all required safety devices and equipment. Before using the products appearing in this catalog, carefully read all instruction manuals and other documentation provided with the product, to ensure proper use.

* The content of this catalog is subject to change without notice for improvement purposes.

Yushin seeks a healthy coexistence with the planet throughout all of our business activities, including developing, employing, and promoting ergonomic and environmentally-friendly technologies.

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2017.10(1)1300TD

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